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Application No. 10/821,232

AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier.

1. (Original) A pump assembly for an implantable prosthesis, comprising:
a housing having a fluid passageway, the fluid passageway having an inlet and an outlet;
a first flow valve located within the fluid passageway between the inlet and the outlet,
and
a supplemental biasing mechanism responsive to inadvertent pressure increases from the inlet to supplement a sealing capability of the first flow valve.
2. (Original) The pump assembly of claim 1, wherein the supplemental biasing mechanism further includes:
a flexible flap in contact with the first flow valve when the first flow valve is in a closed position so that as fluid pressure from the inlet increases, the flexible flap is caused to seal more firmly against the first flow valve.
3. (Original) The pump assembly of claim 2 further comprising:
a tapered passageway for receiving the first flow valve, wherein the flexible flap is part of the tapered passageway.
4. (Original) The pump assembly of claim 1, wherein the supplemental biasing mechanism further includes:
a relief area in contact with the first flow valve when the first flow valve is in a closed position, so that as pressure from the inlet increases the relief area expands and further seals against the first flow valve.

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5. (Original) The pump assembly of claim 1 wherein the supplemental biasing mechanism further includes:
a reservoir chamber disposed within the housing between the inlet and the first flow valve, wherein the reservoir chamber includes an outer wall; and
a portion of the first flow valve which extends into the reservoir chamber and is coupled to the outer wall, so that as fluid pressure within the reservoir chamber increases the outer wall is caused to flex, pulling the flow valve towards a closed position.
6. (Original) The pump assembly of claim 5 further including:
a spring coupling the flow valve to the outer wall.
7. (Original) The pump assembly of claim 6 wherein the spring is biased to maintain the flow valve in close proximity to the outer wall so that as the fluid pressure increases in the reservoir chamber, the spring will aid in the intentional unseating of the flow valve after a pump bulb compression.
8. (Original) The pump assembly of claim 5 further comprising:
a second flow valve, disposed between the first flow valve and the outlet.
9. (Original) The pump assembly of claim 5 wherein a tip of the first flow valve is directly connected the outer wall.
10. (Original) The pump assembly of claim 9 wherein the tip includes a T-shaped portion that is recessed behind at least one slot in the outer wall.

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11. (Original) The pump assembly of claim 1, wherein the supplemental biasing mechanism includes:

a spring biasing the first flow valve into a sealed position, wherein the biasing force of the spring is selected to be strong enough to oppose pressures generated in an overpressurization situation within a reservoir and keep the second flow valve in the sealed position.

12. (Original) The pump assembly of claim 11, further including:

a face coupled to the first valve wherein the face has a large diameter compared to a diameter of the remainder of the first flow valve so that suction forces generated after a compression of a pump bulb act on a sufficient surface area of the face to overcome the biasing force of the spring.

13. (Original) The pump assembly of claim 12 further including:

a first lip seal located within the housing for selectively engaging an inner diameter portion of the face in a substantially fluid tight manner; and

a second lip seal located within the housing for selectively engaging an outer diameter portion of the face in a substantially fluid tight manner.

14. (Original) The pump assembly of claim 1, wherein the supplemental biasing mechanism further includes:

a front face on the first flow valve for selectively sealing and unsealing an opening to the inlet;

a rear section protruding from the first flow valve away from the opening, including an internal fluid passageway and a throughbore providing access into the internal fluid passageway and an outlet providing an egress from the internal fluid passageway;

a valve sleeve slidably engaging the rear section to selectively seal and unseal the throughbore so that as higher pressure levels are generated within the inlet, the front face of the first flow valve is caused to unseal the opening and the valve sleeve is caused to seal the

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throughbore, wherein the valve sleeve contacts a portion of the housing and prevents fluid flow to the outlet.

15. (Original) The pump assembly of claim 1, wherein the supplemental biasing mechanism further includes:

a conical lip seal selectively engageable with a stem portion of the first flow valve, wherein the stem portion includes a cylindrical portion and a groove so that when the groove is positioned adjacent the conical lip seal fluid flow is permitted and when the cylindrical portion is positioned adjacent the conical lip seal fluid flow is prevented in direction from the inlet to the outlet.

16. (Original) The pump assembly of claim 15, comprising;

a face forming a portion of the first flow valve, wherein the face is selectively engageable with and biased towards a valve seat; and

an annulus spaced from the valve seat and allowing the face to be forcibly moved therethrough so that the face is retained on a first side or a second side of the annulus.

17. (Original) The pump assembly of claim 16, further comprising:

a spacer separating a rear portion of the face from the annulus when said face is positioned between the annulus and the valve seat so that fluid flow is permitted around the rear portion and through the annulus.

18. (Original) The pump assembly of claim 17 wherein the spacer is a plurality of bumps located on the annulus.

19. – 27. (Canceled).

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28. (Original) A pressure lock out arrangement for an inflatable prosthesis comprising:
a housing having an inlet and an outlet;
a valve disposed between the inlet and the outlet, the valve being biased toward substantially sealing the outlet; and
a supplemental biasing mechanism responsive to inadvertent pressure increases from the inlet to increase the biasing of the valve toward at least substantially sealing the outlet.
29. (Original) The pressure lock out of claim 28 wherein the supplemental biasing mechanism further comprises:
a front face on the valve for selectively sealing and unsealing an opening to the inlet;
a rear section protruding from the valve and away from the opening, including an internal fluid passageway and a throughbore providing access into the internal fluid passageway and an outlet providing an egress from the internal fluid passageway;
a valve sleeve slidably engaging the rear section to selectively seal and unseal the throughbore so that as higher pressure levels are generated within the inlet, the front face of the valve is caused to unseal the opening and the valve sleeve is caused to seal the throughbore, wherein the valve sleeve contacts a portion of the housing and prevents fluid flow to the outlet.
30. (Original) The pressure lock out of claim 28 wherein the supplemental biasing mechanism further comprises:
a front face on the valve for selectively sealing and unsealing an opening to the inlet;
a rear section protruding from the valve and away from the opening, including an external fluid passageway having an outlet end;
a valve slidably engaging the rear section to selectively seal and unseal the outlet end so that as higher pressure levels are generated within the inlet, the front face of the valve is caused to unseal the opening and the valve sleeve is caused to seal the outlet end, wherein the valve sleeve contacts a portion of the housing and prevents fluid flow to the outlet end.

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31. (Original) The pressure lock out of claim 28 wherein the supplemental biasing mechanism further comprises:

a reservoir chamber disposed within the housing between the inlet and the valve, wherein the reservoir chamber includes an outer wall; and

a portion of the flow valve which extends into the reservoir chamber and is coupled to the outer wall, so that as fluid pressure within the reservoir chamber increases the outer wall is caused to flex, pulling the flow valve towards a closed position.

32. (Original) The pressure lock out of claim 28 further including:

a spring coupling the flow valve to the outer wall.

33. (Original) The pressure lock out of claim 28, wherein the supplemental biasing mechanism further includes:

a conical lip seal selectively engageable with a stem portion of the valve, wherein the stem portion includes a cylindrical portion and a groove so that when the groove is positioned adjacent the conical lip seal fluid flow is permitted and when the cylindrical portion is positioned adjacent the conical lip seal fluid flow is prevented in a direction from the inlet to the outlet.

34. (Original) The pressure lock out of claim 33, comprising:

a face forming a portion of the valve, wherein the face is selectively engageable with and biased towards a valve seat; and

an annulus spaced from the valve seat and allowing the face to be forcibly moved therethrough so that the face is retained on a first side or a second side of the annulus.

35. (Original) The pressure lock out of claim 34, further comprising:

a spacer separating a rear portion of the face from the annulus when said face is positioned between the annulus and the valve seat so that fluid flow is permitted around the rear portion and through the annulus.

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36. (Original) The pressure lock out of claim 35 wherein the spacer is a plurality of bumps located on the annulus.

37. – 45. (Canceled).

46. (Original) A pump assembly for an implantable prosthesis, comprising:
a housing having a fluid passageway, the fluid passageway having an inlet and an outlet;
a first flow valve located within the fluid passageway between the inlet and the outlet;
a supplemental biasing mechanism responsive to inadvertent pressure increases from the inlet to supplement the sealing capabilities of the first flow valve; and
a pump bulb in fluid communication with the fluid passageway

47. (Original) The pump assembly of claim 46, further comprising:
a bar positioned within the housing and moveable between a first and a second position so that when the bar is moved from a first position to a second position the bar causes the first flow valve to move from a closed to an open position to deflate the implantable prosthesis.

48. (Original) The pump assembly of claim 47 further comprising:
a support member coupled to the housing, wherein the support member prevents the first flow valve from moving sideways relative to a major axis of the fluid passageway.

49. (Original) The pump assembly of claim 47, wherein the supplemental biasing mechanism further includes:
a relief area in contact with the first flow valve when the first flow valve is in a closed position, so that as pressure from the inlet increases the relief area further seals against the first flow valve.

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50. (Original) The pump assembly of claim 47 wherein the supplemental biasing mechanism further includes:

a reservoir chamber disposed within the housing, wherein the reservoir chamber includes an outer wall; and

a portion of the first flow valve which extends into the reservoir chamber and is coupled to the outer wall, so that as fluid pressure within the reservoir chamber increases the outer wall is caused to flex, pulling the flow valve towards a closed position.

51. (Original) The pump assembly of claim 50 further including:

a spring coupling the flow valve to the outer wall.

52. (Original) The pump assembly of claim 51 wherein the spring is biased to maintain the flow valve in close proximity to the outer wall so that the spring will aid in the intentional unseating of the flow valve after a pump bulb compression.

53. (Original) The pump assembly of claim 51 further comprising:

a second flow valve, disposed between the first flow valve and the outlet.

54. (Original) The pump assembly of claim 46 wherein the first flow valve is made of a metallic material, and a plastic member is attached to a portion of the first flow valve covering said metallic material.

55. (Original) The pump assembly of claim 48, wherein the supplemental biasing mechanism further includes:

a front face on the first flow valve for selectively sealing and unsealing an opening to the inlet;

a rear section protruding from the first flow valve away from the opening, including an internal fluid passageway and a throughbore providing access into the internal fluid passageway and an outlet providing an egress from the internal fluid passageway; and

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a valve sleeve slidably engaging the rear section to selectively seal and unseal the throughbore so that as higher pressure levels are generated within the inlet, the front face of the first flow valve is caused to unseal the opening and the valve sleeve is caused to seal the throughbore, wherein the valve sleeve contacts a portion of the housing and prevents fluid flow to the outlet.

56. (Original) The pump assembly of claim 47, wherein the supplemental biasing mechanism further includes:

a conical lip seal selectively engageable with a stem portion of the first flow valve, wherein the stem portion includes a cylindrical portion and a groove so that when the groove is positioned adjacent the conical lip seal, fluid flow is permitted, and when the cylindrical portion is positioned adjacent the conical lip seal, fluid flow is prevented in a direction from the inlet to the outlet.

57. (Original) The pump assembly of claim 56, comprising;

a face forming a portion of the first flow valve, wherein the face is selectively engageable with and biased towards a valve seat; and
an annulus spaced from the valve seat and allowing the face to be forcibly moved therethrough so that the face is retained on a first side or a second side of the annulus.

58. (Original) The pump assembly of claim 57, further comprising:

a spacer separating a rear portion of the face from the annulus when said face is positioned between the annulus and the valve seat so that fluid flow is permitted around the rear portion and through the annulus.

59. (Original) The pump assembly of claim 58 wherein the spacer is a plurality of bumps located on the annulus.

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65. (Original) A pressure lock out arrangement for an inflatable prosthesis comprising:
a housing having an inlet and an outlet;
a valve disposed between the inlet and the outlet, the valve being biased toward substantially sealing the outlet, the valve made of metallic material with a plastic member disposed over a portion of the valve; and
a supplemental biasing mechanism responsive to inadvertent pressure increases from the inlet to increase the biasing of the valve toward substantially sealing the outlet.
66. (Original) The pressure lock out of claim 65 wherein the supplemental biasing mechanism further comprises:
a front face on the valve for selectively sealing and unsealing an opening to the inlet;
a rear section protruding from the valve and away from the opening, including an internal fluid passageway and a throughbore providing access into the internal fluid passageway and an outlet providing an egress from the internal fluid passageway;
a valve sleeve slidably engaging the rear section to selectively seal and unseal the throughbore so that as higher pressure levels are generated within the inlet, the front face of the valve is caused to unseal the opening and the valve sleeve is caused to seal the throughbore, wherein the valve sleeve contacts a portion of the housing and prevents fluid flow to the outlet.
67. (Original) The pressure lock out of claim 65 wherein the supplemental biasing mechanism further comprises:
a front face on the valve for selectively sealing and unsealing an opening to the inlet;
a rear section protruding from the valve away from the opening, including an external fluid passageway having an outlet end;
a valve slidably engaging the rear section to selectively seal and unseal the outlet end so that as higher pressure levels are generated within the inlet, the front face of the valve is caused to unseal the opening and the valve sleeve is caused to seal the outlet end, wherein the valve sleeve contacts a portion of the housing and prevents fluid flow to the outlet end.

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68. (Original) The pressure lock out of claim 65 wherein the supplemental biasing mechanism further comprises:

a reservoir chamber disposed within the housing between the inlet and the valve, wherein the reservoir chamber includes an outer wall; and

a portion of the flow valve which extends into the reservoir chamber and is coupled to the outer wall, so that as fluid pressure within the reservoir chamber increases the outer wall is caused to flex, pulling the flow valve towards a closed position.

69. (Original) The pressure lock out of claim 65, wherein the supplemental biasing mechanism further includes:

a conical lip seal selectively engageable with a stem portion of the valve, wherein the stem portion includes a cylindrical portion and a groove so that when the groove is positioned adjacent the conical lip seal fluid flow is permitted and when the cylindrical portion is positioned adjacent the conical lip seal fluid flow is prevented in direction from the inlet to the outlet.

70. (Original) The pressure lock out of claim 69, comprising;

a face forming a portion of the valve, wherein the face is selectively engageable with and biased towards a valve seat; and

an annulus spaced from the valve seat and allowing the face to be forcibly moved therethrough so that the face is retained on a first side or a second side of the annulus.

71. (Original) The pressure lock out of claim 70, further comprising:

a spacer separating a rear portion of the face from the annulus when said face is positioned between the annulus and the valve seat so that fluid flow is permitted around the rear portion and through the annulus.

72. (Original) The pressure lock out of claim 71 wherein the spacer is a plurality of bumps located on the annulus.

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73. – 74. (Canceled).